

**CHARLES P. ALEXANDER: A TRIBUTE, WITH EMPHASIS
ON HIS BOYHOOD IN FULTON COUNTY, NEW YORK,
AND HIS STUDIES AT CORNELL UNIVERSITY**

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Charles Paul Alexander died nearly four years ago, but entomology will not forget "Doc Alex." The sheer numbers of his taxonomic accomplishments will not allow it: the description of some 11,000 species of flies in more than 1,000 publications. He dedicated his life to making better known a family of Diptera he found fascinating, the crane flies or Tipulidae. His prolific output of species descriptions, particularly the naming of more than 10,000 species in a single family, most likely will never be surpassed.

But Professor Alexander was more than an outstanding taxonomist. He was a well-rounded student of natural history; an enthusiastic teacher who introduced the basics of entomology to an estimated 4,000 students at the University of Massachusetts, Amherst; an administrator, who at Amherst served as chairman of the Department of Entomology and Zoology and as dean of the School of Science; and an active member of several scientific societies and a past president of the Entomological Society of America.

Many of Dr. Alexander's friends and students—*family* to "C. P." and his wife Mabel—will remember the warmth and affection they found on visits to "Crane Fly Haven," his home laboratory at 39 Old Town Road, Amherst. The letters I received from Dr. Alexander during 1977-1980 reveal a willingness to praise others' work, or as J. C. Bradley put it, a way of making "a fellow feel that he has amounted to something in this world" (1). Wielopolska (1978) simply, yet elegantly, captured his personality by saying he was "a person of great charm."

Alexander's achievements are so remarkable as to seem incredible, considering that he made nearly all his own illustrations (about 15,000) and worked without the aid of large government grants or technical assistance (except for his wife). His distinguished career deserves the informative accounts that Ashley B. Gurney (1959) and George W. Byers (1982) have provided. More can be written about his life and work, but I am not a dipterist, and therefore one who might be qualified to evaluate his contributions to tipulid systematics or his concepts of intraspecific variation, nor a colleague who can capture the essence of his personality; indeed, I never met him. We did, however, share a fondness for Cornell University. A few years before his death, I encouraged Dr. Alexander to publish his Cornell experiences and association with John Henry Comstock's legendary department, but his wife's death in 1979 and his own failing health kept him from preparing such a paper. I hope I am not presumptuous in inferring from his letters a desire for someone to detail his early years, especially his "wonderful Cornell days" (2).

UNCONVENTIONAL CHILDHOOD: AN ADIRONDACK NATURALIST

Charles Paul Alexander, born at home on Poole Avenue, Gloversville, New York, September 25, 1889, was the youngest child of Emil and Janet (Parker) Alexander. His father, of Polish descent and born in Berlin on December 3, 1852, was christened August Emil Schladensky (3); his mother was born August 19, 1851, in Johnstown, New York (4). Mr. Alexander came to the United States from Germany in 1873. A skilled worker with leather, he settled in Johnstown to work in the glove industry of Fulton County, adopting the name Ernest August Emil Sladensky. In 1874 he had his name legally changed to Emil Alexander. The family name was difficult to spell and pronounce (5), and he also wanted to avoid the embarrassment of being continually confused with an unsavory town character having a surname that sounded too much like "Sladensky" (6).

When Charles was only a year old, his parents' house was destroyed by fire, and the Alexanders moved to Woodside Avenue near Gloversville's south end. The family had little money and no luxuries, but Charles enjoyed "an ordinary childhood" with "wonderful parents and good friends" (7). For two years beginning at age 10 he sold newspapers on the street, making relatively large sums (\$4.00–5.00) in 1901 upon the deaths of Queen Victoria and President McKinley (8).

Maps, birds, and plants. The young boy (Fig. 1), Chuck or Chuckie as he was known to his friends, found maps particularly fascinating (9). This early preoccupation led to a keen appreciation of geography, which later would aid his worldwide studies of crane flies. Although he never travelled outside North America, Alexander usually enhanced his regional works on tipulids with introductory "comments on the topography, climate, vegetation and other geographic aspects of the area concerned" (Byers, 1982). As Gurney (1982) noted, he "read so broadly on foreign areas that he could visualize conditions of particular regions and their zoogeographic relationships to other foreign areas."

From earliest youth animals provided another source of pleasure. He filed pictures of animals cut from magazines and comics and spent hours observing wildlife in the unspoiled country near his home. With his friend Axel Olsson he explored Simmons Woods and its "clear sparkling brook." Wild flowers, birds, and insects came under their scrutiny. They maintained a list of Fulton County plants; particularly exciting finds included the seldom-seen ginseng that the boys discovered on the slopes of Bleeker mountain above the Gloversville reservoir, and the little orchid *Listera australis* they found growing on sands above Olsson's home on Park Street (10). Somewhat later came camping trips to mountains, ponds, and lakes (Caroga, Canada, and Mountain) of the southern Adirondacks. They also explored the Sacandaga River, its Sport Island, and the nearby vast marshland known as Vlei (11).

Clearly the boys viewed nature differently from their schoolmates. Avoiding (or maybe lacking time for) baseball and other kids' games brought scorn from neighbors and relatives who predicted the two "would never amount to much" (12). Some 60 years later Alexander suggested to Olsson that the negative feelings about their scientific endeavors, especially from the latter's cousin Albert, were inspired by envy (13). This seems reasonable considering all that Alexander accomplished before graduating from high school.

At about 10 years of age Alexander had become interested in birds. He kept a



Fig. 1. Chuck Alexander at 11 years of age (courtesy of Smithsonian Institution Archives).

notebook of Fulton County species, which contained descriptions and key recognition features, detailed notes on their habits and songs, line drawings, and a few water color illustrations (14). A short article, entitled "A Young Woodcock," appeared in the March 1903 issue of *American Ornithology* when he was only thirteen. This article reported his discovery of a woodcock and her four young. Charles wrote about

picking up one of the little birds: "I wanted to take it home but it cried so sadly and pitifully that I put it down and continued on my way" (Alexander, 1903). Between 1904 and 1910 he published fifteen additional notes on birds and their eggs, all in *The Oologist* (15). In responding to a reader's criticism of his observations (Alexander, 1905) or answering an editor's query regarding the identity of a species he observed (Alexander, 1908a), Charles demonstrated a good knowledge of birds and the ornithological literature. It may be said that some of his bird studies seem trivial, but the articles were generally well written. His observations of a nighthawk reveal an interesting, anecdotal style: "Once in a while the birds come and alight in the tall pine trees studding the blue-berry fields and so lethargic are its slumbers when thus alit that a stone may be thrown that hits the branch upon which the sleeper sits, and still he 'waketh not'" (Alexander, 1904).

During his senior year (1906), Charles' deep commitment to birds was revealed by his copying much of Gould's *Birds of Australia*, discovered at Lenox Library on a visit to his brother Will in New York City. While in charge of surveying Fulton County for E. H. Eaton's *Birds of New York* (see Eaton, 1910 for acknowledgment of Alexander's data), he so neglected his studies to observe the spring migrations that he nearly failed his courses, especially German (16).

How did young Alexander develop such an intense interest in natural history? Was it an innate curiosity about living things, perhaps reinforced by Axel Olsson's companionship and similar leanings? He admitted that they were the only true naturalists in their families; each had an older brother interested mainly in music or poetry and an older sister who was a housewife (17). On a field trip with his brother William, Charles referred to himself as the "scientific man" of the expedition (Alexander, 1908b). William was to become a prominent naturalist and conservationist (18), but his biological interests appear to have developed after his younger brother's formative years (19). Furthermore, William was in Germany studying music during a five-year period when Charles was active in his bird work (20). His father may have had some influence, for Charles characterized him as having "a keen love and appreciation of nature" (21). As a boy, Charles' father had made an insect collection in Germany (22). A biology teacher in the Gloversville schools also may have been influential (23). Alexander, however, seemed to credit his mother for his biological bent: "Unquestionably most of what I am or can be is due to her" (24).

TURNING TO INSECTS, DISCOVERING "TIPS"

Although Alexander continued his bird studies by following the 1908 and 1909 spring migrations for W. W. Cooke of the U.S. Biological Survey (25), he had realized by winter 1906 that "the field of local bird study was becoming restricted" (26). He also knew that there were only about 20,000 species of birds in the world compared to almost that many insects in New York or New England (27). He began collecting insects in earnest, making for each capture a detailed entry in his journals, and soon accumulated a considerable collection. During trips to Albany in connection with his bird studies (1904–1905), Alexander had met State Entomologist E. P. Felt and his assistant, D. B. Young. On another trip to Albany he stopped at Felt's office on State Street below the Capitol and obtained identifications for some of his specimens. Gradually, through correspondence, he became acquainted with other leading spe-

cialists—Nathan Banks, C. W. Johnson, J. G. Needham, E. A. Schwarz, and E. P. Van Duzee—who provided identifications of insects in various orders (28).

An interest in collecting almost all kinds of insects, especially Odonata and other aquatic forms, soon led to a fascination with some longlegged flies encountered in Simmons Woods and elsewhere. Alexander had no idea what these insects were—crane flies (Tipulidae), or “tips” as he would fondly call them in later life—or that they would be the subject of his life’s work. “I saved all these flies that I could find and by June had a small box with twenty or thirty pinned individuals” (29).

In late June 1906 he again stopped in Albany on his way to visit his brother, hoping such a well-trained entomologist as Dr. Felt could easily identify the long-legged flies. About that eventful meeting he wrote: “Without seeing the contents, he replied that he would be glad to name all he could. I can recall the sinking feeling that came over me when he opened the box and upon seeing that they were all crane-flies said ‘I’m sorry that I cannot help you, but there is no one in this country who can name these flies’” (30). “But wait,” said Felt, “here is one I can name.” Alexander grabbed his notebook to record *Bittacomorpha clavipes* (F.), a phantom crane fly, species number one in what “was destined to become the greatest single collection of these flies ever amassed” (31).

After getting over his initial disappointment, Alexander was able to appreciate the significance of Felt’s remarks. If an entomologist of his experience was unaware of anyone who could identify North American crane flies, then they would serve as an ideal group for investigation. He decided to spend the remainder of his life studying tipulids (32).

Of college caliber. During a visit with Dr. Felt in spring 1907, Alexander was, in his words, hit by a “bombshell.” The State Entomologist “galvanized me when he remarked that no matter what hardships it might entail, he advised me to go to College and continue the study of insects. I was then a senior in the Gloversville High School and this was absolutely the first idea I had that I was possibly of college calibre. In these early days, it was a rare event for a boy or girl to ‘go to college’” (33).

Felt specifically recommended Cornell University at Ithaca, New York, where J. H. Comstock had assembled an outstanding faculty in entomology. That Cornell was *the* place to go for entomological training was reinforced by Alexander’s acquaintance with James G. Needham. In 1906 Charles had collected an unusual mayfly on Sport Island in the Sacandaga River. The specimen, a single female (Alexander later provided specimens of both sexes), was given to Felt, who forwarded it to Needham, then at Lake Forest College in Illinois (34). Needham, recognizing that the mayfly’s remarkably developed abdomen showed affinity only with a New Zealand species, described a new genus and species, *Siphonisca aerodromia* (Needham, 1909). Even today, Alexander and G. C. Crampton are thought to be the only entomologists who have seen a living specimen of this rare, interesting species (Edmunds et al., 1976). Alexander had been intrigued with Needham’s (1908) report on crane flies of Old Forge, New York, in the Adirondacks and had corresponded with him during 1906–1907. He later acknowledged that it was Needham’s letters and “kindly advice” that were instrumental in his continuing devotion to these insects. After Needham accepted a limnology appointment at Cornell in February 1907, Charles decided he would like to be his student (35).

Following graduation from high school in 1907, Alexander applied for fall admission to Cornell but was denied because he lacked German III. By then it was too late to make up the deficiency with a post-graduate course. When the Alexander family moved to nearby Johnstown in July (36), Charles began working in a glove factory, earning \$1.00 for a 10-hour day. The next year he was allowed an hour a day to take German III at Johnstown High School. In June 1909, having met Cornell's requirement of three years of a modern foreign language, he was accepted for the fall term (37).

Working 10 hours a day for two years did not keep Alexander from collecting "vast numbers of insects" (38) (Fig. 2) and accumulating about 1,500 determined species by summer 1909 (39). Before nightfall he would collect at a nearby cemetery and along Hales Creek, then would return home for supper. Apparently Charles' mother not only put up with having to fix late meals but encouraged her son's work: "A mother who believed in me and appreciated to the full what this meant to my future life, made this course possible" (40).

During this period, Alexander devoted some attention to beetles, often taking an insect net along on birding expeditions (Alexander, 1908b). Among Coleoptera, he emphasized staphylinids and obtained identifications from Felt and E. A. Schwarz; this group, not the Tipulidae, was the subject of his first entomological paper. Notes on rove beetles of eastern New York appeared in the February 1909 issue of *Philatelic West* and continued in the May and July numbers for that year (Alexander, 1909). Alexander did not list this obscure paper in the compilation of his writings (paper number 685 in Oosterbroek and Theowald, 1980), and because it was not recorded in *Zoological Record*, this paper probably has gone unnoticed by coleopterists.

But young Alexander spent most of his time collecting Tipulidae, which were sent for determination to C. W. Johnson of Boston. This material contained "several striking new species" and "many rarities" (41). Johnson (1912) named one of Charles' tipulids *Elliptera* (now *Gonomyia*) *alexanderi*, the first of many species dedicated to him. Receiving names for many of the Fulton County specimens gave him his "first appreciation of the richness of the Tipulid fauna of the southern Adirondacks and also . . . that very many species . . . awaited discovery and description." Johnson's gift of volume 4 of Osten Sacken's monograph of North American Diptera (Osten Sacken, 1869), shortly before he left for Cornell University, enabled him to have "a fair idea of the size and importance of the group" (42).

His first paper on crane flies (Alexander, 1910) was based on collections made in Fulton County the summer before he entered college. From May to September 1909 he traversed the county, often collecting until sundown and once persisting through a rainstorm to secure a specimen. Alexander's first new genus was *Sacandaga* (Alexander, 1911), named for the river and proposed to accommodate the species *flava*, which he collected on Sport Island as early as June of that year (43).

CORNELL DAYS: THE GOLDEN AGE

Alexander had managed to save about \$500 from working in the glove factory at Johnstown, but he entered Cornell "terribly poor" (44). Arriving in Ithaca on September 23, 1909, two days before his twentieth birthday, he found suitable (and probably inexpensive) quarters in the home of Professor Robert Lee Shipman on Dryden Road near the south entrance to campus (45). Though he cooked most of

Part I.

Fauna of Insects.



Aquatic; root stalks, long, cylindric, horizontal and thick; leaves cordate and large; flower yellow.

Look for this species in the muddy sloughs along streams, and especially in H. Vanderburg's Pond. *Doracia palmata* should occur; also *D. cincticornis* (N. Hamp.)

Galerucella nymphaea is to be looked for especially.

Fig. 2. Page from one of Alexander's diaries and notebooks; this one, from "Entomologia, Reference Book, (Field) 1907," shows his attention to plants as hosts of particular insects, in this case Chrysomelidae (courtesy of Smithsonian Institution Archives).

his meals at Shipmans to save money, he found his savings melting rapidly. Soon came an opportunity to tend two home furnaces, with one of them paying his room and the other, with an occasional third, providing some spending money (46). For a time, he also worked from 2 to 7 A.M. for an ice company located near the southern end of Cayuga Lake (47). He was able to earn additional money by working in the entomological library for Professors A. D. MacGillivray and W. A. Riley (48). He genuinely appreciated the assistance from Cornell's entomology faculty: "From the very first Comstock, Needham, and almost all the others seemed to go out of their way to be good to me and to help in various ways" (49). One reason for the good early impression he made on Comstock and MacGillivray was his arriving with five specimens of the primitive dipteran *Protoplasma fitchii* Osten Sacken (Tanyderidae), then considered "incredibly rare" (50).

On his second day in Ithaca, Charles was eager to explore the campus—to find "sanctum sanctorum," the Entomology Department, housed on the upper floors of Roberts Hall, which would be "home" for the next eight years (51). He located the building on Cornell's agriculture campus and was browsing in the entomology library, "marvelling at the vast number of books and pamphlets there available" (52), when he was approached by a fellow freshman who mistook him for an advanced student. "Sir, could you tell me where I could find a copy of Aldrich's [1905] Catalogue of North American Diptera" (53)? The other student was Mortimer D. Leonard, who had arrived in town the night before. Locating the volume, the two admired its contents and discussed a mutual interest in dipterology. Thus was born a deep, life-long friendship with Mort, who was to stay at Cornell for a Ph.D. in entomology and to gain prominence for editing the New York insect list (Leonard, 1928), publishing numerous papers on insect biology and distribution, and becoming one of the first well-trained entomologists to serve industry (see Wheeler, 1978). Alexander cherished his friendship with Leonard, several times writing Mort on September 24 to commemorate their fortuitous first encounter, which he termed "a most fortunate circumstance" (54). To Leonard and his wife Doris he wrote in 1959: "I am writing this letter on the above date specifically and intentionally since according to my firm belief it was exactly fifty years ago today that Mort and I had our historic meeting in Roberts Hall. I, too, have told of this initial meeting to many people and it is most certainly one of my fondest recollections" (55).

The two freshmen then left the library to see if they could get a glimpse of Professors Needham or Comstock—"great names to youngsters about to be initiated into the vast world of entomology" (56). Next to a pillar in Roberts they spied a tall, well-dressed man who surely had to be Dr. Needham. At this same time a "vigorous man of middle age, with a bucket in one hand," came up the stairs; this, they decided, must be the janitor. Shortly after, they discovered their error. The "aristocratic white collared gentleman" was the janitor; the other proved to be Dr. Needham, who was returning from field work at the nearby Renwick Marsh (57).

Undergraduate academics and employment. In his freshman year Alexander took several "attractive" courses that increased his "knowledge of insects and the other subjects beyond all expectation" (58). One of the most exciting was Dr. Needham's General Biology, a new offering in fall 1909 that was required of all students in the

College of Agriculture. It was based on a textbook bearing the same name, which would appear the following year (Needham, 1910). This first year of the course students had to use page proofs of the book (59).

Although Alexander had corresponded with Needham as a high school student and had chosen Cornell specifically to study under him, he did not meet the Professor until General Biology had met for some two months. "I made no effort to foist myself upon him, since it was readily apparent that he was a very busy man." But one day "the 'Master' came up the aisle and paused beside the desk where I was working. After a moment' [*sic*] silence he said, in his profound voice, 'Is your name Alexander?' I admitted this fact, and it was followed by 'C. P. Alexander of Gloversville?' This, too, was admitted. 'Well, well, will you come into my office, please?' Upon doing this came a severe but gentle rebuff over not having made myself known to him earlier" (60).

The entomology faculty must have realized that this atypical freshman demonstrated exceptional potential. Soon after Alexander began his studies, Professor Comstock called him to his office to ask if he would like to become an active member of the Entomological Society of America, and he was proposed for election at the end of his freshman year (61). It also was during his first year at Cornell that he set as a life goal the description of 5,000 new species of Tipulidae (62).

That first year Needham scrutinized Alexander's work, and following the end of second semester he asked his protégé to spend the summer in Ithaca collecting material for succeeding years' biology classes. At the Department's Limnological Laboratory on Renwick Flats at the south end of Cayuga Lake, he accumulated frogs, crayfish, fruiting liverworts, and a multitude of other organisms necessary for teaching a class of about 500 students (63). The 20 cents an hour he received, "a princely sum in those days" (64), was double what he had made in Gloversville. At the end of his summer's work he wrote: "Today I left Ithaca for home after the most splendid summer of my existence. It passed like a dream" (65). In 1911 Needham again asked Alexander to stay for part of the summer to collect teaching material (66).

But the work of summer 1912 was to be Alexander's most memorable Cornell experience. Since spring he, Mort Leonard, and other students had been making plans to join Professor J. Chester Bradley on the Cornell Biological Expedition to Okefenokee Swamp in southern Georgia (Wheeler, 1978). One day, though, Needham asked Charles just how much his heart was set on making this trip; bravely, he replied "not too much" (67). The Professor then revealed that Liberty Hyde Bailey, Dean of the Agriculture College, had asked him to institute a course that would acquaint Cornell students with natural resources of the agriculture campus and associated university farms. For the new Farm Course, Needham was to remain in Ithaca for the summer to make preparations; he asked that Alexander stay to help him and to assist him with the course the following year. Thus, professor and student spent most of that summer building an outdoor amphitheater in Cascadilla Gorge near the athletic fields. It was difficult work: soil had to be dynamited and carried away to allow construction of a "series of stone seats arranged in concentric semicircles before a concrete pulpit" (68). Each morning, after they carried in a basket of dynamite, Alexander would tamp down the sticks—ticklish work, but he loved it. "This summer

with Dr. Needham was one of the most instructive in my whole life, since our daily conversation embraced about everything in the world of living things and there was no question I could ask that was not answered by the teacher" (69).

Alexander earned an additional \$400 for serving as an assistant in General Biology his junior year, and \$500 his senior year for assisting Mrs. Comstock in Nature Study and Needham in Limnology (70). For an undergraduate, serving as an assistant to several professors was an unusual experience. Other valuable training was obtained from courses taught by the Cornell faculty. In addition to Needham's General Biology there were botany classes under George Atkinson, L. H. Bailey, E. J. Durand, E. Laurence Palmer, W. W. Rowlee, William Trelease, and K. M. Wiegand; ichthyology with A. H. Wright; histology with S. H. Gage; and geology with A. C. Gill, G. D. Harris, and R. S. Tarr (71). Palmer's advanced course in field botany proved "relatively simple" because of the substantial work he and Axel Olsson had done on the Fulton County flora (72). Later, Professor Palmer recalled how difficult it was to keep up with the two (73) in studies of the local flora (74). From the distinguished faculty in entomology, at that time recognized as unsurpassed in the United States (75), Charles was able to take J. H. Comstock's courses before that great teacher retired in 1914 (76). He also felt privileged to be among J. C. Bradley's earliest students, though he found him a "very strict disciplinarian" (77).

Having completed requirements for the baccalaureate degree in 3½ years (78), Alexander graduated in January 1913 (Fig. 3). In his senior year he was elected to full membership in Sigma Xi, an honor normally accorded graduate students and faculty (79). As an undergraduate he had published nearly 30 papers, including two with his friend Mort Leonard (Alexander and Leonard, 1912a, b), and had begun to study tropical forms (e.g., Alexander, 1912a, b). Even as a freshman Alexander had planned studies on cranefly biology that would lead to a Ph.D. (80), and so "it was tacitly understood that I was to continue graduate work at Cornell . . . upon some problem in connection with the Tipulidae" (81).

Events of summer 1913, however, nearly led Alexander to leave Cornell. At Orono, Maine, O. A. Johannsen had resigned his position with the Agricultural Experiment Station to return to Cornell to relieve Needham of part of the work in biology. Dr. Edith Patch chose not to hire a faculty member immediately but to bring in various specialists as summer workers. She invited Alexander to study systematics and biology of crane flies; joining him were A. D. MacGillivray, then at the University of Illinois after leaving Cornell in 1911 (see Mallis, 1971), who would conduct research on sawfly larvae, and Ohio State's Herbert Osborn who would work on Cicadellidae. The orthopterist A. P. Morse spent part of the summer in Orono. At Morse's suggestion, Alexander and Osborn accompanied him and an Indian guide on a nearly week-long collecting trip to Mt. Katahdin. In Alexander's words, he "became greatly attached" to Dr. Osborn and considered doing his graduate work at Ohio State. An increase in salary and an appointment as Instructor for Needham's Farm Course induced him to remain at Cornell (82).

The graduate years, 1913–1917 (Figs. 4, 5). When Alexander and his friend Axel Olsson both decided to stay at Cornell for graduate study, they moved to the basement of a house on East Seneca Street near the university's infirmary (83). Otherwise, Alexander's transition from undergraduate to graduate student probably required



Fig. 3. Alexander's senior picture, which appeared in the *Cornell 1913 Class Book* (courtesy of Department of Manuscripts and University Archives, Cornell University).





Fig. 5. Alexander (foreground, fourth from left) with Cornell students on a field trip to Coy Glen, October 1916; his brother William is in back row with vasculum (courtesy of Smithsonian Institution Archives).

little adjustment, although impending war brought anxiety: "We never knew from one day to the next whether we might be called into service" (84) (Fig. 6). For his doctoral thesis he decided to work on crane fly biology, his important study appearing as Cornell memoir 38 (Alexander, 1920). "This having to locate and rear the great numbers of life histories was very exacting but gave me a grasp of Tipulid biology that . . . helped me constantly over the years that followed" (85).

During this period he earned \$750 annually as Instructor in charge of field laboratory work for Needham's Farm Course. The textbook used, *The Natural History of the Farm* (Needham, 1913), includes one of Alexander's illustrations (p. 63). Assisting with the course's various sections were several students, including Ralph Curtis and Lawrence MacDaniels, who became distinguished faculty members in Cornell's College of Agriculture (86).

In spring 1917 Alexander took his oral examination so he could begin looking for

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Fig. 4. Alexander as a Cornell graduate student, 1914 (courtesy of Smithsonian Institution Archives).



Fig. 6. Alexander as a cadet in the Cornell army corps, 1910; see note 84 (courtesy of Smithsonian Institution Archives).

jobs in entomology which, at that time, he and other students "found were very difficult to obtain or almost non-existent" (87). Soon H. B. Hungerford offered him an Instructorship at the University of Kansas in Lawrence; Hungerford in 1916 had been granted a year's leave of absence from the Kansas faculty to pursue doctoral work at Cornell (Woodruff, 1956). Again forgoing a Cornell Biological Expedition, Alexander accepted the offer to teach courses in taxonomy and to be assistant curator of the insect collections. When he reported for work at Lawrence on July 1, 1917, he had completed all Ph.D. requirements except finishing his dissertation (88). His degree was awarded in 1918, and a thesis he submitted for a "minor problem" in botany also bears that date (Alexander, 1918).

Clubs, fraternities, and summer fun. With his coursework, assisting several professors, and publishing extensively on Tipulidae, one might wonder if Alexander found time to participate in campus affairs. Somehow he did. He was active in the Agassiz Club, founded about 1908 for undergraduates interested in biology (Wright, 1953). Members met weekly for presentations, either formal or of a more general nature, and for field excursions. He was president one year, and as secretary his senior year (89) he arranged the programs. He solicited talks from nearly every professor and capable graduate student and was grateful for their willingness to serve the club (90). For the spring semester of 1912 he was elected president of Jugatae (91), the oldest entomological society in American universities. Named after Comstock's discovery of the primary division of Lepidoptera into Jugatae and Frenatae, the society met weekly for entomological talks by faculty and advanced students (92). His first presentation to Jugatae, "Myrmecophilous Coleoptera," was made on May 16, 1910 (93). In June 1915 he was part of a team organized by Professor A. A. Allen for surveying birds of the central campus, part of a national effort coordinated by the U.S. Bureau of Biological Survey (Smith, 1984).

On a more social than scientific level Charles, with Harry H. Knight and others, was in 1914 a founder of the Zeta Chapter of Alpha Gamma Rho, a national agricultural fraternity. Alexander remarked that he and Knight, a graduate student studying plant bugs (Miridae) (see Wheeler, 1979), not only shared an interest in systematic entomology and the fraternity but also suffered financial hardship during their college careers. He delighted in listening to Harry's tales of hunting wild turkeys as a boy growing up in the Missouri Ozarks (94). Alexander also was a member of Helios, the senior agricultural society (95), and Gamma Alpha (96), a graduate scientific fraternity (Wright, 1964).

One of Alexander's most enjoyable events during his eight years in Ithaca was the "lamprey banquet" held at the inlet to Cayuga Lake (97). He also was a football fan. In a letter to J. C. Bradley in early November 1920 he said he "would especially like to be back to root at the ball-games" (98). On the eve of that year's annual Thanksgiving Day game with the University of Pennsylvania, he noted that he hoped Cornell "would lick Penn to a frazzle" (99).

There also were happy times spent as a member of "a little select group" known as Cynophilidae (or Gastrophilidae) (100). Charles, his brother Will (who had enrolled at Cornell in 1915 at age 33), Axel Olsson, Professor Needham's son John, and a few other graduate students would assemble at the Needhams to play cards, using matches for their bets. A good meal would follow: "'hot dogs' and other accompanying materials, that suggested the names for the group" (101).

Summer trips also provided fun. In 1914 he camped with Olsson on the Sacandaga River near Vlei country. They studied the "rich Transition flora" (102), discovering several rare species. Their graphic description of the area attracted the attention of State Botanist Homer D. House, who spent two days with them checking their botanical finds (103).

Alexander's most enjoyable trip with Olsson came as a member of the Second Expedition of the *Ecphora*, a launch belonging to geology professor Gilbert D. Harris and used previously in paleontological explorations. Axel had invited his friend to serve as "entomologist" for the party, which also consisted of three geology students. Leaving Ithaca through Cayuga Lake in early summer 1915, they continued through the Barge Canal and Mohawk River to the Hudson, down the river to New York Bay, across New Jersey via the Raritan Canal to the Delaware River at Trenton, and down the river to Delaware City and through a short canal into the Chesapeake Bay above Baltimore. After investigating the Bay and Potomac River, they continued to Norfolk, Virginia, south by canal through the Dismal Swamp in southern Virginia, and into the northernmost sounds of North Carolina. When the party reached New Bern at the mouth of the Neuse River, Alexander found among his accumulated mail a letter from W. L. McAtee of the U.S. Biological Survey, inviting him to survey aquatic plants along the South Carolina coast. After a briefing in Washington, he spent several weeks between Georgetown and Charleston gathering data to help explain the decline in wild fowl that feed on aquatic vegetation. His work took him west to Reelfoot Lake in northwestern Tennessee before he resumed his studies at Cornell (104).

Meeting his future wife and co-worker. Even more eventful in 1915 than the excursion of the *Ecphora* was meeting his future wife, Mabel Marguerite Miller. Born in Brookview (Rensselaer County), New York, July 29, 1894, she moved to Gloversville after completing training at Albany Business College. She was working as a secretary for the E. J. Wilkins Co., a manufacturer of purses and similar articles, when Charles met her while visiting his parents. He continued to see her when he had additional time off from his studies, and they became engaged in 1916 (Alexander, 1979). The significance of meeting Mabel—for his sense of well-being in later years and for his unrelenting productivity as an entomologist—cannot be overemphasized. She was to serve as a co-worker on Tipulidae, typing his letters and manuscripts, preparing an invaluable index to his books and papers on crane flies, and even coauthoring two important tipulid catalogs with her husband (Byers, 1982). Charles did not drive a car, and it was Mabel who was to be "pilot, companion, and fellow collector" (Gurney, 1959) on all their many trips to the western states, New England, Canada, and elsewhere. Fender (1951), in naming a new species of cantharid after Mabel, said of her husband: "Fortunate indeed is this man who managed to marry a humorist, cook, chauffeur, stenographer, proof reader and ardent supporter—all one individual." "C. P." himself was to admit: "I could never have accomplished half of what I did without her at my side" (105).

POST-CORNELL YEARS: A RECAPITULATION

At Lawrence, one of Alexander's first duties at the University was to conduct an insect survey of the western Kansas plains, with assistance from three graduate

students during the 4- to 5-week-trip (106). Soon he and Mabel decided to marry, and she came by train to Kansas City where he met her. Professor S. J. Hunter took them to Lawrence (107). Their simple ceremony, attended only by entomology professors Hunter, H. B. Hungerford, P. B. Lawson and their wives, was held in Lawrence on November 10, 1917. Because of his relatively low salary at the University, it was necessary for Mabel to begin work as a secretary for a major business in Lawrence. In 1919 S. A. Forbes of the Illinois Natural History Survey arrived, without advance notice, to ask if Alexander would be interested in a position with the Survey in Urbana. Forbes, who insisted on interviewing a potential employee's spouse, had a "nice talk" with the couple; he then offered Charles the position at \$1,000 more than his current salary, which the two accepted together (Alexander, 1979). Later Alexander told Hungerford: "There was very little incentive to slave one's life out in the top floor of the Dyche Museum during the hot days of summer at the munificent salary of \$100 per month" (108).

From spring 1919 to August 1922 Alexander had charge of the museum at the Illinois Natural History Survey, and Mabel worked as a secretary for State Entomologist W. P. Flint. In 1921 H. T. Fernald, head of the Entomology Department at Massachusetts Agricultural College (now University of Massachusetts), wrote to ask if he would be interested in an assistant professorship at the Amherst school, the duties to include teaching insect taxonomy, medical entomology, and other courses. Although the Alexanders were happy in Illinois, they decided to accept the offer, mainly because they would be much closer to their aging parents; his work would begin the following year on September 1 (Alexander, 1979). Before they left, a New Year's Day fire damaged their home and possessions and destroyed many Cornell items (109). Just as firemen were arriving, the attic crashed down on Mabel, and she suffered severe burns before being pulled to safety. The Flints cared for her in their home during her month's convalescence (Alexander, 1979) (110).

Nearly throughout his tenure at Amherst, Alexander worked a seven-day week, squeezing in species descriptions between classes (111), and kept a nine-month appointment so he and Mabel could take summer collecting trips (Alexander, 1979). He also corresponded regularly with Bradley, Knight, Leonard, Olsson, and others he had known at Ithaca. In 1928 he returned to Cornell to attend the Fourth International Congress of Entomology; there he agreed to turn over his immature Tipulidae to J. Speed Rogers (University of Florida) and to let him pursue studies on tipulid ecology (Byers, 1982). His last visit to Cornell was in early 1965 when he spent "two wonderful and exciting days" (112) with Professor Bradley and others.

Alexander's accomplishments in teaching, research, and administration during his 37 years at the University of Massachusetts are well known (see Gurney, 1959; Byers, 1982). Students in his classes were "inspired at least a little, in many cases deeply, by his personal magnetism and enthusiasm" (Gurney, 1959). His administrative duties included serving as Head of Entomology from 1930 until his retirement in 1959, Head of the Department of Entomology and Zoology (1938-1948), Acting Dean of the School of Science (1945-1946), and Dean (1946-1952) (Gurney, 1959). And, of course, there was a steady outpouring of taxonomic papers. From 1927 to 1946 he kept an annual record of the number of new species described, with the number of lifetime species and notes to explain "poor" years: illness, the deaths of his father and sister in 1932, large numbers of figures required for particular papers,

and disturbed conditions during World War II (113). He learned in 1928 that according to the staff of *Zoological Record* he had described the largest number of new species in one family (114). And yet he tried to approach his work with a "humble spirit," in contrast to his graduate years at Cornell (and in Kansas and Illinois) when he figured he had "mastered the group" (115). In 1938 he wrote Bradley that new species number 5,000 had been described (116). Less than twenty years later Mort Leonard was astonished to learn that his friend had at least 1,000 more undescribed forms on hand. "If you can only keep on Chuck you may make 10,000 yet, although that is almost too fantastic a figure for me to imagine—or would be if it were anyone else at all but you" (117). Continuing toward that goal, Alexander wrote Bradley in 1965: "Your being able to do the fine work that you are accomplishing on the Scoliidae has encouraged me to believe that I may be privileged to keep up my own work until I drop, as they say" (118). In the early 1970's he attained his goal of describing 10,000 new species in a single family. Well aware of that figure's significance, he had told Leonard shortly before: "As you know, and as we have mentioned various times before, no one ever has described that number of species in a single family, either in plants or animals. Personally, I do not think anyone has described even half that number, and it seems certain it never will be done again, chiefly because of the depletion in numbers of possible new species" (119).

Alexander described his last species in May 1979 (120) and, upon Mabel's death on September 24 of that year, seemed to lose interest in crane flies, even though an estimated 4,000 new species in unopened envelopes and packages awaited description. "It's never ending. I need another lifetime, that's all" (121). But the death of his beloved wife was devastating: "It is a very, very lonely life I lead these days without her" (122). Apparently preparing for the end, he transferred his library and tipulid collection to the National Museum of Natural History in Washington in spring 1981. He died at his home on December 3.

For more than forty years he had expressed an interest in willing money to U.S. entomological societies (123). After his death several societies were notified by probate court that they would receive a sum from the Alexander estate, to be used for publication purposes (Gurney, 1982). Wilkinson (1984) informed dipterists of the availability of Alexander's papers and other materials, which occupy about 60 shelf feet in the Smithsonian Archives.

In a biographical sketch of his longtime friend, George Byers (1982) wrote: "When a man of great accomplishments has lived into his ninety-third year, it seems more fitting to commemorate his long and purposeful life than to mourn his death"—hence the desire for my own tribute to this unforgettable scholar and gentleman.

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NOTES

1. J. Chester Bradley to C. P. Alexander, Jan. 23, 1970. Charles P. Alexander Papers, circa 1895–1979, Smithsonian Institution Archives, Washington, D.C., Record Unit 7298; hereafter this collection is abbreviated as Alexander Papers, SIA.
2. Alexander to A. G. Wheeler, Jr., Apr. 8, 1980.
3. Alexander to Ashley B. Gurney, Aug. 28, 1979; "Personal Record of Charles P. Alexander," and "Charles Paul Alexander," Alexander Papers, SIA; "Entomology at Cornell 1909–1917, Recollections of Charles Paul Alexander," Comstock Memorial Library, Cornell University, Ithaca, New York (hereafter Entomology at Cornell, CML). Charles gave his mother's first name variously as *Janet* ("Charles Paul Alexander," Alexander Papers, SIA), *Jane* ("Entomology at Cornell," CML), and *Jennie* (biographical data in Alexander's alumni file, Department of Manuscripts and University Archives, Cornell University, Ithaca, New York) (hereafter Alumni File, CU). His "Personal Record" is an 8-page account (typed from handwritten sheets) covering 1889–1915.

4. Alumni File, CU.
5. "Charles Paul Alexander," Alexander Papers, SIA.
6. Alexander to Gurney, Aug. 28, 1979.
7. "Personal Record," Alexander Papers, SIA.
8. Ibid.
9. Ibid.
10. Alexander to Axel Olsson, Sept. 6, 1972, and Olsson to Alexander, Apr. 30, 1974, Alexander Papers, SIA.
11. "Personal Record," Alexander Papers, SIA.
12. Olsson to Alexander, Apr. 30, 1974, Alexander Papers, SIA.
13. Alexander to Olsson, May 12, 1974, Alexander Papers, SIA.
14. "Personal Record," and notebook on "Birds of Fulton Co.," Alexander Papers, SIA.
15. "Published Writings of Chas. P. Alexander" [1903-1910], Alexander Papers, SIA.
16. "Personal Record," Alexander Papers, SIA.
17. Alexander to Olsson, Mar. 15, 1974, Alexander Papers, SIA.
18. For biographical information on William Prindle Alexander (1881-1956), see A. B. Gurney, "Charles Paul Alexander," *Fernald Club Yearbook* (Fernald Entomol. Club, Univ. Massachusetts), 28 (1959), 1-6, and *Sanctuary News* (Nature Sanc. Soc. West. New York, Buffalo), 16 (1956), 1-4.
19. See *Leader-Republican* (Gloversville, New York), Aug. 28, 1939, p. 8, Alexander Papers, SIA.
20. William's parents sent him to study at the Conservatory of Music in Leipzig during 1900-1905, Alumni File, CU; "Prof. William P. Alexander," *Buffalo Courier-Express*, Oct. 1, 1956, Alexander Papers, SIA.
21. "Charles Paul Alexander," Alexander Papers, SIA.
22. Ibid.
23. Alexander to Minerva Fonda, Nov. 18, 1952, Alexander Papers, SIA.
24. "Charles Paul Alexander," Alexander Papers, SIA.
25. "Personal Record," Alexander Papers, SIA.
26. "Entomology at Cornell," CML.
27. Alexander to H. B. Hungerford, Mar. 31, 1937, Alexander Papers, SIA. Although Alexander's figure was accurate for his time, the number of birds is now thought to be about 9,000; see W. J. Bock and J. Farrand, Jr., "The number of species and genera of recent birds: a contribution to comparative systematics," *Am. Mus. Novitates*, 2703 (1980), 1-29.
28. "Personal Record," Alexander Papers, SIA. Early in his career, Alexander was able to meet (in addition to Needham) at least one other specialist. During Thanksgiving vacation 1910, he and a fellow Cornell student, M. D. Leonard, visited Van Duzee at his home in Buffalo. Alexander characterized the noted hemipterist as "exceedingly enthusiastic, more so than any collector I have ever known." "Diary, July-Nov. 1910," Alexander Papers, SIA.
29. "Entomology at Cornell," CML.
30. "Personal Record," Alexander Papers, SIA.
31. Ibid.
32. Ibid.
33. Ibid.
34. "Entomology at Cornell," CML.
35. Alexander to J. G. Needham, May 2, 1936, Alexander Papers, SIA.
36. Alexander to Olsson, Mar. 15, 1974, Alexander Papers, SIA.
37. "Personal Record," Alexander Papers, SIA. Completion of the language requirement appeased David F. Hoy, Cornell's legendary, tough-but-fair Director of Admissions and Registrar. It is ironic that he initially was denied by Hoy, who himself had botanical interests,

having completed in 1893 an M. S. degree at Cornell on the flora of Delaware Co., New York. A. H. Wright, "Pre-Cornell and early Cornell. David Fletcher Hoy," *Stud. in Hist.*, 30 (n.d., 1964?), 1-6.

38. Ibid.

39. "Data for Insects, Take of 1909," a notebook, Alexander Papers, SIA.

40. "Personal Record," Alexander Papers, SIA.

41. Ibid.

42. Ibid.

43. Alexander soon reduced *Sacandaga* to a subgenus of *Rhabdomastix* Skuse. "Neotropical Tipulidae in the Hungarian National Museum (Diptera—III)," *Entomol. News*, 25 (1914), 211.

44. Alexander to Wheeler, Apr. 8, 1980.

45. Alexander to Olsson, Mar. 15, 1974, Alexander Papers, SIA.

46. "Personal Record," Alexander Papers, SIA.

47. Alexander to Hungerford, Mar. 31, 1937, Alexander Papers, SIA.

48. "Entomology at Cornell," CML.

49. Alexander to Wheeler, n.d., but late 1978.

50. Alexander to Hungerford, Mar. 31, 1937, Alexander Papers, SIA.

51. "Personal Record," Alexander Papers, SIA.

52. "Entomology at Cornell," CML.

53. Alexander to Wheeler, Jan. 7, 1977. In contrast to this formal greeting, Alexander later was known to students by the nickname "Alex." "Write-up, Cornell 1913 Class Book," Alumni File, CU.

54. Alexander to Wheeler, n.d., but late 1978.

55. Alexander to M. D. Leonard, Sept. 24, 1959, Alexander Papers, SIA.

56. "Personal Record," Alexander Papers, SIA.

57. Ibid.

58. "Entomology at Cornell," CML.

59. "Personal Record," Alexander Papers, SIA.

60. Ibid.

61. Alexander to John Stoffolano, July 15, 1976, accepting, in absentia, the L. O. Howard Award, Eastern Branch, Entomological Society of America, presented Aug. 24, 1976, during the XV International Congress of Entomology, Washington, D.C., Alexander Papers, SIA.

62. Alexander to Bradley, Mar. 16, 1938, Alexander Papers, SIA.

63. "Personal Record," Alexander Papers, SIA.

64. "Entomology at Cornell," CML.

65. "Diary, July–November, 1910," Alexander Papers, SIA.

66. "Personal Record," Alexander Papers, SIA.

67. Ibid.

68. Ibid.

69. Ibid.

70. "Entomology at Cornell," CML.

71. Ibid.; Cornell class notebook, Alexander Papers, SIA.

72. Alexander to Olsson, Mar. 15, 1974, Alexander Papers, SIA.

73. In January 1911 Olsson transferred to Cornell from Boston Tech (now Massachusetts Institute of Technology) and took a room at Shipmans next to Alexander; Olsson to Alexander, Apr. 30, 1974, Alexander Papers, SIA. Axel Adolf Olsson (1889–1977) became a well-known geologist and paleontologist and was a founder of the Paleontological Research Institute, Ithaca, New York. Biographical data in Olsson's alumni file, CU.

74. Alexander to Olsson, Sept. 20, 1970; during 1909–1912 Alexander kept a notebook of Fulton Co. plants, "Flora Fultoniensis," which contained about 560 taxa, Alexander Papers, SIA.

75. Alexander to Olsson, Mar. 15, 1974, Alexander Papers, SIA. See also E. H. Smith, "The Comstock and Cornell: in the people's service," *Annu. Rev. Entomol.*, 21 (1976), 15.
76. Alexander to Wheeler, Apr. 8, 1980.
77. Alexander to Leonard and his wife Doris, Feb. 26, 1974, Alexander Papers, SIA.
78. "Personal Record," Alexander Papers, SIA.
79. Alexander to Olsson, Mar. 15, 1974, Alexander Papers, SIA.
80. Alexander to Hungerford, Mar. 31, 1937, Alexander Papers, SIA.
81. "Personal Record," Alexander Papers, SIA.
82. Ibid.
83. Alexander to Olsson, Mar. 15, 1974, Alexander Papers, SIA.
84. Alexander to Wheeler, Apr. 8, 1980. During the academic year 1909–1910, Alexander had served in Company A, infantry, as a cadet in the university army corps, Alumni File, CU. See figure 6.
85. Alexander to Wheeler, Jan. 7, 1977.
86. "Entomology at Cornell," CML.
87. Alexander to Olsson, Mar. 15, 1974, Alexander Papers, SIA.
88. Ibid.
89. *The Cornellian*, 45 (1913), 329.
90. "Entomology at Cornell," CML.
91. "Jugatae Record, 1911–1914," vol. 4, CML.
92. "Entomology at Cornell," CML.
93. "Jugatae Record, 1903–1911, vol. 3, CML.
94. Alexander to H. H. Knight, May 25 and Nov. 23, 1975, Alexander Papers, SIA; Alexander to Wheeler, June 18, 1978, and Apr. 8, 1980.
95. *The Cornellian*, 45 (1913), 329.
96. O. A. Johannsen to Alexander, n.d., but circa 1919, Alexander Papers, SIA.
97. Alexander to Leonard and wife Doris, Nov. 17, 1964, Alexander Papers, SIA.
98. Alexander to Bradley, Nov. 1, 1920, Alexander Papers, SIA.
99. Alexander to Bradley, Nov. 22, 1920, Alexander Papers, SIA.
100. Alexander to Olsson, Sept. 20, 1970, Alexander Papers, SIA.
101. Alexander to Olsson, Mar. 15, 1974, Alexander Papers, SIA.
102. "Personal Record," Alexander Papers, SIA.
103. Ibid.; Alexander to Olsson, Sept. 6, 1972, Alexander Papers, SIA.
104. Alexander to Olsson, Sept. 20, 1970, and Mar. 15, 1974, Alexander Papers, SIA.
105. John Sherwood, "'Doc Alex': The World's Greatest Crane Fly Electronic Data Bank," *The Washington Star*, Nov. 22, 1979, Sec. D, pp. 1, 7.
106. Alexander to Olsson, Mar. 15, 1974, and G. W. Byers, Oct. 5, 1975, Alexander Papers, SIA; Alexander to Wheeler, Apr. 8, 1980.
107. Alexander to Wheeler, Apr. 8, 1980.
108. Alexander to Hungerford, Feb. 29, 1924, Alexander Papers, SIA.
109. Alexander to Leonard and wife Doris, Nov. 17, 1964, Alexander Papers, SIA.
110. Alexander to Wheeler, Apr. 8, 1980.
111. Sherwood, 'Doc Alex.'
112. Alexander to Bradley, Apr. 21, 1965, Alexander Papers, SIA.
113. "Record of New Species," Alexander Papers, SIA.
114. Alexander to Hungerford, Mar. 31, 1937, Alexander Papers, SIA.
115. Ibid.
116. Alexander to Bradley, Mar. 16, 1938, Alexander Papers, SIA.
117. Leonard to Alexander, Oct. 27, 1957, Alexander Papers, SIA.
118. Alexander to Bradley, Apr. 21, 1965, Alexander Papers, SIA.
119. Alexander to Leonard and wife Doris, Mar. 8, 1970, Alexander Papers, SIA.

120. Sherwood, 'Doc Alex.'

121. Ibid.

122. Ibid.

123. Alexander to Hungerford, Mar. 31, 1937, Alexander Papers, SIA.